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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/888,464

06/25/2001

Douglas E. Bise

K-1816

8703

7590

04/23/2004

Kevin P. Weldon
kennametal Inc.
P.O. Box 231
Latrobe, PA 15650

EXAMINER

GAY, JENNIFER HAWKINS

ART UNIT

PAPER NUMBER

3672

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,464

Applicant(s)

BISE ET AL.

Examiner

Jennifer H Gay

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17, 19-21, 25-35 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 14, 15, 19-21, 23, 25, 28, 32-35 and 37-39 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 9-13, 16, 17 and 29-31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's arguments presented in the Appeal Brief filed 01 March 2004 were persuasive, therefore, the finality of that action is withdrawn. The new grounds of rejection are given below.

Claim Objections

1. Claim 23 is objected to because of the following informalities: in line 3 of the claim "monolithichard" should be changed to --monolithic hard--, the comma in line 4 should be deleted, and in line 5 a comma should be added after "member" and " , is" should be changed to -that are--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 19, 23, 25-27, 32, 33, and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Hauptmann et al. (US 2001/0013429 and US 2001/0013430).

The examiner notes that the "solid hard metal head" disclosed in Hauptmann et al. '430 is the same as that in Hauptmann et al. '429. Accordingly, the examiner has used only Hauptmann et al. '430 and the specifics taught therein in the following rejection.

Regarding claim 1: Hauptmann et al. discloses a rotary drill bit for penetrating the earth. The drill bit includes the following features:

- An elongated bit body having an axial forward end. This feature is not specifically taught, however, the drill bit must include a bit body in

order for the drill bit to be used. Therefore, Hauptmann et al. inherently teaches a elongated bit body. Further, Hauptmann et al. discloses an elongated bit body 8).

- A monolithic hard insert 1 affixed to the axial forward end of the bit body.
- At least three discrete cutting edges 2/9 and 3 that are stepped (Figures 1 and 3). As shown in Figure 1, the two cutting edges 3 include an upper elevation and a lower elevation thus defining a step and as shown in Figure 3, cutting edge 2/9 includes an upper elevation and a lower elevation when including element 9 as part of the cutting edge 2.

Regarding claim 2: As seen in Figures 1 and 3, cutting edges 2/9 and 3 include an upper and a lower step.

Regarding claim 3: As shown in Figures 1 and 3, at least a small portion of the upper and lower steps of each cutting edge are parallel to each other.

Regarding claim 19: Hauptmann et al. discloses a rotary drill bit for penetrating the earth. The drill bit includes the following features:

- An elongated bit body having an axial forward end. This feature is not specifically taught, however, the drill bit must include a bit body in order for the drill bit to be used. Therefore, Hauptmann et al. inherently teaches a elongated bit body. Further, Hauptmann et al. discloses an elongated bit body 8).
- A monolithic hard insert 1 affixed to the axial forward end of the bit body.
- At least three discrete cutting edges 2/9 and 3 that are nonlinear (Figures 1 and 3).

Regarding claim 23: Hauptmann et al. discloses a rotary drill bit for penetrating the earth. The drill bit with a central longitudinal axis where the bit includes the following features:

- A bit body having an axial forward end. This feature is not specifically taught, however, the drill bit must include a bit body in

order for the drill bit to be used. Therefore, Hauptmann et al. inherently teaches a bit body. Further, Hauptmann et al. discloses a bit body 8).

- A monolithic hard insert 1 affixed to the axial forward end of the bit body.
- At least three leading cutting edges 2/9 and 3 that are stepped (Figures 1 and 3). As shown in Figure 1, the two cutting edges 3 include an upper elevation and a lower elevation thus defining a step and as shown in Figure 3, cutting edge 2/9 includes an upper elevation and a lower elevation when including element 9 as part of the cutting edge 2.

It should be noted that the functional recitation that the steps improve the disintegration of the earth strata has not been given patentable weight because it is narrative in form. In order to be given weight, a functional recitation must be expressed as a “means” for performing the specified function, as set forth in 35 USC 112, 6th paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172; 388 O.G. 279. It has been held that the term “integral” is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

Regarding claim 25: As seen in Figure 2, the hard insert includes a side clearance cutting edge corresponding to each leading cutting edge.

Regarding claim 26: As seen in Figures 1 and 3, cutting edges 2/9 and 3 include an upper and a lower step.

Regarding claim 27: As shown in Figures 1 and 3, at least a small portion of the upper and lower steps of each cutting edge are parallel to each other.

Regarding claim 32: Hauptmann et al. discloses a monolithic hard member 1 for attachment to a drill bit body where the member and the bit body form a drill bit for penetrating the earth. The hard member includes at least three discrete cutting edges 2/9 and 3 that are nonlinear (Figures 1 and 3).

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Regarding claim 33: As seen in Figures 1 and 3, cutting edges 2/9 and 3 include an upper and a lower step.

Regarding claim 37: Hauptmann et al. discloses a drill bit that includes a monolithic hard member 1 that has at least three discrete cutting edges 2/9 and 3 that are nonlinear (Figures 1 and 3).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 6-8, 14, 15, 19-21, 23, 25-28, 32-35, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726) in view of Stockard, Jr. (US 3,132,708).

Regarding claim 1: Weaver et al. discloses a rotary drill bit. The bit includes the following features:

- An elongate body 12 with an axial forward end.
- An solid insert (generally located at "18") affixed to the axial forward end of the body and having a central longitudinal axis.
- Three discrete leading cutting edges 26 located on the insert where the cutting edges are stepped and include tungsten carbide inserts.

Weaver et al. discloses all of the limitations of the above claims except for the insert being a monolithic hard insert.

Stockard, Jr. discloses a drill bit similar to that of Weaver et al. Stockard, Jr. further teaches that the cutting edges 38 on the steps of each blade 19 may be tungsten carbide inserts, similar to that of Weaver et al., or formed as a integral portion of hardened steel the blade.

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It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, as taught by Stockard, Jr. thus forming a monolithic hard insert in order to have increased the life of the drill bit by reducing the likelihood of the cutting edges being broken off the drill bit.

Further, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, since the examiner takes Official Notice of the equivalence of the cutting edges being tungsten carbide inserts and the cutting edges being formed integrally with the bit body and the selection of any of these known equivalents to form the cutting edges of Weaver et al. would be within the level of ordinary skill in the art as evidenced by Stockard, Jr.

Regarding claim 2: The stepped cutting edge includes an upper and lower step **28**.

Regarding claim 3: The leading cutting edge of the upper and lower step are parallel (see Figures 1 and 2).

Regarding claim 6: The bit further includes a central longitudinal axis that passes through the insert and each of the leading cutting edges begins at a point radially outward from the central axis and extends away from that axis (see Figure 1 and 2).

Regarding claim 7: The leading cutting edges are formed by a corresponding leading edge of the insert that intersects the top surface of the insert (see Figure 1 and 2).

Regarding claim 8: The stepped cutting edges included a radially inward upper step and a radially outward lower step.

Regarding claim 14: The upper and lower steps have generally planar rake surfaces (see Figures 1 and 2).

Regarding claim 15: The angle of the lower rake surface is different from the angle of the upper rake surface (see Figure 28).

Regarding claim 19: Weaver et al. discloses a rotary drill bit. The bit includes the following features:

- An elongate body **12** with an axial forward end.

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- An solid insert (generally located at "18") affixed to the axial forward end of the body and having a central longitudinal axis.
- Three discrete leading cutting edges **26** located on the insert where the cutting edges are nonlinear and include tungsten carbide inserts.

Weaver et al. discloses all of the limitations of the above claims except for the insert being a monolithic hard insert.

Stockard, Jr. discloses a drill bit similar to that of Weaver et al. Stockard, Jr. further teaches that the cutting edges **38** on the steps of each blade **19** may be tungsten carbide inserts, similar to that of Weaver et al., or formed as a integral portion of hardened steel the blade.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, as taught by Stockard, Jr. thus forming a monolithic hard insert in order to have increased the life of the drill bit by reducing the likelihood of the cutting edges being broken off the drill bit.

Further, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, since the examiner takes Official Notice of the equivalence of the cutting edges being tungsten carbide inserts and the cutting edges being formed integrally with the bit body and the selection of any of these known equivalents to form the cutting edges of Weaver et al. would be within the level of ordinary skill in the art as evidenced by Stockard, Jr.

Regarding claim 20: The cutting edge includes a generally planer upper rake surface and a generally planer lower surface **28**.

Regarding claim 21: The bit further includes a central longitudinal axis that passes through the insert and each of the leading cutting edges begins at a point radially outward from the central axis and extends away from that axis (see Figure 1 and 2).

Regarding claim 23: Weaver et al. discloses a solid insert **18** for attachment to a bit body **12** to form a drill bit for penetrating the earth. The drill bit includes a central

longitudinal axis. The insert includes at least three discrete leading cutting edges **26** that are stepped and include tungsten carbide inserts.

It should be noted that the functional recitation that the steps improve the disintegration of the earth strata has not been given patentable weight because it is narrative in form. In order to be given weight, a functional recitation must be expressed as a "means" for performing the specified function, as set forth in 35 USC 112, 6th paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172; 388 O.G. 279. It has been held that the term "integral" is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

Weaver et al. discloses all of the limitations of the above claims except for the insert being a monolithic hard insert.

Stockard, Jr. discloses a drill bit similar to that of Weaver et al. Stockard, Jr. further teaches that the cutting edges **38** on the steps of each blade **19** may be tungsten carbide inserts, similar to that of Weaver et al., or formed as a integral portion of hardened steel the blade.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, as taught by Stockard, Jr. thus forming a monolithic hard insert in order to have increased the life of the drill bit by reducing the likelihood of the cutting edges being broken off the drill bit.

Further, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, since the examiner takes Official Notice of the equivalence of the cutting edges being tungsten carbide inserts and the cutting edges being formed integrally with the bit body and the selection of any of these known equivalents to form the cutting edges of Weaver et al. would be within the level of ordinary skill in the art as evidenced by Stockard, Jr.

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Regarding claim 25: The insert further includes a side clearance cutting edge (see Figures 1 and 3).

Regarding claim 26: The stepped cutting edge includes an upper and lower step 28.

Regarding claim 27: The leading cutting edge of the upper and lower step are parallel (see Figures 1 and 2).

Regarding claim 28: The bit further includes a central longitudinal axis that passes through the insert and each of the leading cutting edges begins at a point radially outward from the central axis and extends away from that axis (see Figure 1 and 2).

Regarding claim 32: Weaver et al. discloses a solid insert 18 for attachment to a bit body 12 to form a drill bit for penetrating the earth. The insert includes at least three discrete leading cutting edges 26 that are nonlinear and include tungsten carbide inserts.

Weaver et al. discloses all of the limitations of the above claims except for the insert being a monolithic hard insert.

Stockard, Jr. discloses a drill bit similar to that of Weaver et al. Stockard, Jr. further teaches that the cutting edges 38 on the steps of each blade 19 may be tungsten carbide inserts, similar to that of Weaver et al., or formed as an integral portion of hardened steel the blade.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, as taught by Stockard, Jr. thus forming a monolithic hard insert in order to have increased the life of the drill bit by reducing the likelihood of the cutting edges being broken off the drill bit.

Further, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, since the examiner takes Official Notice of the equivalence of the cutting edges being tungsten carbide inserts and the cutting edges being formed integrally with the bit body and the selection of any of these known equivalents to form the cutting edges of Weaver et al. would be within the level of ordinary skill in the art as evidenced by Stockard, Jr.

Regarding claim 33: The stepped cutting edge includes an upper and lower step 28.

Regarding claim 34: The upper step includes a generally planer upper rake surface and the lower step includes a generally planer lower surface 28.

Regarding claim 35: The bit further includes a central longitudinal axis that passes through the insert and each of the leading cutting edges begins at a point radially outward from the central axis and extends away from that axis (see Figure 1 and 2).

Regarding claim 39: Weaver et al. discloses a drill bit having a solid insert 18. The insert includes at least three discrete leading cutting edges 26 that are nonlinear and include tungsten carbide inserts.

Weaver et al. discloses all of the limitations of the above claims except for the insert being a monolithic hard insert.

Stockard, Jr. discloses a drill bit similar to that of Weaver et al. Stockard, Jr. further teaches that the cutting edges 38 on the steps of each blade 19 may be tungsten carbide inserts, similar to that of Weaver et al., or formed as an integral portion of hardened steel the blade.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, as taught by Stockard, Jr. thus forming a monolithic hard insert in order to have increased the life of the drill bit by reducing the likelihood of the cutting edges being broken off the drill bit.

Further, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified Weaver et al. such that the stepped cutting edges were formed as an integral part of the blade, i.e. bit body, since the examiner takes Official Notice of the equivalence of the cutting edges being tungsten carbide inserts and the cutting edges being formed integrally with the bit body and the selection of any of these known equivalents to form the cutting edges of Weaver et al. would be within the level of ordinary skill in the art as evidenced by Stockard, Jr.

Regarding claim 38: The cutting edges included a radially inward upper step and a radially outward lower step.

Regarding claim 39: The cutting edges included a radially inward upper step and a radially outward lower step with a transition portion between the steps.

Allowable Subject Matter

6. Claims 4, 5, 9-13, 16, 17, and 29-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

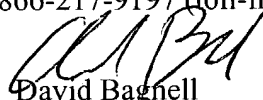
7. Applicant's arguments with respect to claims 1-3, 6-8, 14, 15, 19-21, 23, 25-28, 32-35, and 37-39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Thursday, 6:30-4:00 and Friday, 6:30-1:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David Bagnell
Supervisory Patent Examiner
Art Unit 3672

JHG
April 15, 2004